

New Malayan Plants.

By H. N. RIDLEY.

The following plants apparently undescribed have turned up lately in various collections made in the Peninsula.

SCITAMINEÆ.

Zingiber Wrayii, Prain mss. A slender plant over a foot tall. Leaves elliptic, lanceolate, glabrous, 9 inches long, 3 inches wide, narrowed at the base but not petioled. Peduncle 4 inches tall covered with large loose sheathing leaves, spike three inches long, ovoid obconic. Bracts thin elliptic $1\frac{1}{2}$ inch long $\frac{1}{2}$ inch wide or less. Flowers solitary yellow. Bracteole spathaceous, lip spotted and marked with purple. Anther narrow linear, beak half an inch long.

Upper Perak at 300 feet elevation (Wray 3735). The only specimen I have seen is in poor condition but it seems a distinct plant from any described, from its rounded head of thin bracts, most of the allied species having cylindric spikes.

Elettariopsis cyanescens, n. sp. Rhizome $\frac{1}{4}$ inch through, violet inside, covered with dry sheaths, stems 18 inches tall, rather slender base, olivaceous. Leaves 8, lanceolate acuminate glabrous 6 inches long $1\frac{1}{2}$ inches wide, hardly petiolate, ligule rounded short. Spike short, peduncle half an inch long covered with long dry lanceolate bracts $1\frac{1}{2}$ inches long, flowers four. Ovary oblong pubescent $\frac{1}{4}$ inch long. Calyx tube $1\frac{1}{2}$ inches long, pubescent at the base, apex long acuminate. Corolla tube narrow $\frac{1}{2}$ inch longer pubescent, lobes oblong half an inch long $\frac{1}{6}$ inch wide lip, oblong rounded 1 inch long. All white except the tip of the lip which is blue. Stamen oblong, crest moderately large, stigma large cup-shaped with pubescent edges.

This pretty species was collected by Mr. W. G. Napier on banks at Bukit Tanga, Seremban; it is nearly allied to *E. pubescens* but has much shorter flower spikes and quite glabrous leaves. The flowers when bruised became of a blue color, perhaps containing indigo.

ORCHIDÆ.

Dendrobium mellitum, n. sp. A very small epiphytic plant, stems few 4 or 5 inches long, very slender above the lowest two or three joints, swollen a little for $\frac{3}{4}$ inch length. Leaves few terete subulate, 3 inches long $\frac{1}{16}$ inch thick. Flower solitary subterminal, from a short raceme, with small bracts. Pedicel and ovary $\frac{1}{8}$ inch long thick yellow. Upper sepal ovate $\frac{1}{4}$ inch long, lateral sepals ovate falcate obtuse, mentum short broad and blunt. Petals narrower and shorter, all yellow. Lip three-lobed, lobes broad short curved tips rounded yellow veined with pink inside, midlobe oblong truncate, edged minutely laciniate veins and a patch in the centre pink, three parallel raised veins white on the disc. Anther oblong hemispheric brown, column face flat stained pink.

Johore, at Castlewood on the Sungei Tebrau, May 1903, I found a single plant of this very weak slender little orchid on a tree, and flowered it in the Botanic Gardens. It is allied to *D. clavator*, Ridley, a native of Perak, but has the base of the stem much less swollen, and an entirely different lip. Considering the size of the flower, half an inch across, it was wonderfully strongly scented of honey.

Thricospermum crassifolium, n. sp. An epiphyte on coffee bushes, stem 6 inches tall, thick, leaves close set, thick leathery oblong obtuse, tip rounded, 4 inches long $1\frac{1}{2}$ inches thick, sheaths under half an inch long purple, scapes 3 to 5 inches long stiff, base purple, raceme $1\frac{1}{2}$ to 4 inches long flattened. Bracts distichous $\frac{1}{4}$ inch long close set, ovary and pedicel $\frac{1}{4}$ inch long. Sepals linear caudate from a broader base $\frac{3}{4}$ inch long, petals narrower linear caudate, all bright pellow. Lip $\frac{1}{4}$ inch long, pubescent orange

passing into cherry red at the tip. Spur saccate blunt, side lobes arched blunt, middle fleshy blunt ovate. Callus on the disc tongue-shaped rounded depressed in the centre, column white with rounded and broad wings. Anther hemispheric. Fruit linear angled, 3 inches long $\frac{1}{4}$ inch through.

On old coffee bushes at Castlewood, Johore. This is allied to *Th. Arachnites* which was common in the same place, but has the short stout leaves and stem of *Th. Scortechinii*. The flowers however are much smaller than any other of this group.

AMARYLLIDÆ.

Curculigo megacarpa, n. sp. A large tufted plant with a stout stem. Leaves dark green oblong lanceolate acuminate glabrous 20 inches long, 3 inches wide, petiole 8 inches long. Peduncle 4 inches long tomentose with large lanceolate acuminate bracts at the base, lower ones hairy on the edge only, upper ones more hairy. Spike broad conic-cylindric 2 to 4 inches long. Flower 1 inch across. Sepals lanceolate acute $\frac{1}{2}$ inch long dirty yellow outside and hairy at the tip. Petals bright yellow, stamens yellow, filaments short, anthers oblong, wavy, hairy, beaked. Fruit 2 inches long, Indian-club shaped $\frac{3}{8}$ inch through at the base, white seeds very numerous angled ribbed black.

Perak, in forests on the Thaiping Hills at 2000 to 3000 feet elevation.

This seems to be common on the Thaiping Hills and has probably been hitherto overlooked or taken for a form of *C. latifolia*, but it can hardly be referred to that species, variable as it is. It is larger in all parts of the flower and fruit, the latter being very long club shaped.

BURMANNIACÆ.

Burmattia oblonga, n. sp. A slender saprophyte 5 inches tall with numerous wiry roots. Stem sparingly or not at all branched. Leaves sheath-like, scales few and distant. Flowers one or two on the ends of the stem $\frac{3}{8}$ inch long and $\frac{1}{4}$ inch broad across the wings, tube narrow wings oblong with straight edges, angles rounded. Sepals and petals short blunt. Petals much the shorter.

Penang on rocks at 1500 to 2000 feet altitude (King's collector 2270.)

This plant should be sought again. It resembles the common *B. coelestis* in the form of its flowers, but is saprophytic. The very broad oblong wings of the perianth tube are very striking.

Since publishing the paper on *Burmanniaceæ* in Journal 22, p. 332, I have been able to add to this group of plants:—*B. Championii*, Thwaites. A small ivory white plant like *B. tuberosa*, Becc., but more compact, with a short thick root stock covered with scales, from the Laba river in Selangor, and two additional species of *Thismia*; *Th. grandiflora*, Ridl., with rather large pink flowers collected by Lieut. Kelsall on the Sembrong river in Johor; and *Th. chrysops*, Ridl., a very pretty kind from Mount Ophir with pink and chocolate flowers with a yellow ring round the mouth of the tube; and *Bagnisia crocea* of Beccari, a very oddly shaped little brown species met with in the Perak Hills.

DIOSCOREACEÆ.

Dioscorea tennifolia, n. sp. Stems slender leaves mostly opposite thin glabrous elliptic cuspidate, base rounded 5 nerved 2 to 3 inches long an inch wide, petiole slender an inch long. Male panicle long and slender a foot or more, spikes slender one to three inches long, 3 or more in a whorl, rachis angled minutely pubescent. Flowers very small distant pubescent. Bracts shorter ovate. Sepals oblong ovate. Petals nearly as long oblong obtuse. Stamens 6, filaments fairly long.

Singapore on Bukit Timah (Ridley 4596.)

This wild yam is remarkable for its very thin leaves and slender stems. I have only met with a male plant but it seems very distinct from all other described species.

LILIACEÆ.

Ophiopogon Malayanus, n. sp. Stem erect stout 4 inches or more tall covered with the scarious sheaths of the fallen leaves and emitting long woody roots. Leaves linear acumi-

nate, falcate striate, glaucous beneath 9 inches long $\frac{3}{8}$ inch wide. Scape 4 inches long base nude. Flowers small white. Bracts 2, bases broad ovate, tips linear, outer one $\frac{1}{4}$ inch long. Pedicel longer. Sepals and petals ovate subacute $\frac{1}{8}$ inch long. Stamens connivent filaments very short, anthers lanceolate. Style terete longer.

Perak at Padang Rengas (W. Fox) Lankawi on Gunong Raya (Curtis 2643). The *Ophiopogons* are abundant in the mountainous regions of North India and China, but get very scanty further south, in fact this is the only one from the Peninsula except the little known and doubtful *O. prolifera* from Penang. Though perhaps as near the common and variable *O. intermedius* of India, it is very distinct in its tall stout stem, broad leaves and ovate petals and sepals.

Tupistra violacea, n. sp. Terrestrial stem short and stout, leaves broadly oblong oblanceolate acute narrowed gradually to the base, 3 feet long, 3 inches wide, dark green stiff, spike very dense about 8 inches high. Flowers sessile $\frac{1}{2}$ inch across, tube hemispheric violet, lobes oblong recurved darker. Anthers 6 sessile elliptic. Style cylindric white, spotted with violet. Stigma club-shaped rounded obscurely three-lobed.

Perak, Bujong Malacca; Penang, Highlands (Curtis).

This *Tupistra* differs from the other Peninsular species, *T. grandis*, Ridl., in its smaller lighter colored flowers and the rounded club-shaped stigma which is flat and circular in *T. grandis*. Though not perhaps as striking as that species it is a pretty plant.

Dracaena conferta, n.sp. Stem 4 to 10 feet tall, little or not branched. Leaves narrow linear acuminate 24 to 27 inches long $\frac{3}{8}$ inch wide, base broadly sheathing, midrib very strong at the base, thinning upwards and disappearing before the tip. Raceme 2 feet long, erect, simple or occasionally branched, the base with numerous reduced leaves with broad bases, and acuminate upwards, peduncle rather stout with a few small sheathing leaves, inflorescence long dense. Flowers white, three or four in a tuft, with very short pedicels, and 2 or 3 ovate acuminate bracts $\frac{1}{8}$

inch long. Perianth tube $\frac{1}{4}$ inch long, narrow lobes linear $\frac{1}{4}$ inch long. Fruit globose as large as a pea.

Perak, Selama at 300 to 500 feet elevation (King's collection 3149); Thaiping Hills near the Tea Gardens. There is also a specimen in Cantley's collections without locality, either from Malacca or Sungei Ujong. This *Dracaena* is allied to *D. Porteri*, Bak., but has longer and stiffer leaves with a very dense raceme of flowers. It is known to Malays as "Poko San Juan hutan jantan."

Dr. penangensis, n.sp. A shrub about 8 or 10 feet tall, with the stem an inch through, leaves when young oblong petioled, adults shorter. Upper leaves lanceolate acuminate 6 to 7 inches long, 1 to $1\frac{1}{4}$ inch wide, petiole 1 inch long, sheathing at the base. Panicle erect 8 to 10 inches long with about eleven or twelve stiff branches four inches long or less with lanceolate acuminate bracts at the base $\frac{1}{4}$ to $\frac{1}{2}$ inch long. Flowers in twos and threes on slender pedicels $\frac{1}{4}$ inch long. Perianth lobes narrow, white. Fruit as large as a cherry, 1 to 3 seeded, scarlet.

Penang at Batu Feringhi on the banks of the stream and at Highlands (Curtis 2369). Dried specimens of this often resemble those of *D. Maingayi* our biggest tree *Dracaena*, but the living plant is much smaller and the leaves are very variable in form.

D. Jackiana, Wall. Cat. 5145. This plant obtained in Penang by Wallich was confused by Baker (Journ. Linn. Soc. XIV, 5-32) with *D. aurantiaca*, Wallich, under the name of *D. spicata* var. *aurantiaca*; and Hooker in the flora of British India puts it under imperfectly known species. I have not seen Wallich's specimens but Dr. Prain says that a plant collected on the Thaiping Hills by Kunstler (No. 2719) is exactly like the Wallichian plant. This plant is I think identical with a plant I collected in Pahang and described under the name of *D. longifolia* (Trans. Linn. Soc. III, 388). Hooker refers the Perak plant to Kurz's *D. pachyphylla*, an Andamanese plant, which however is probably distinct to judge from his description.

D. pendula, n.sp. A tall shrub with a moderately stout stem about 6 feet tall, leaves broadly oblong lanceolate acuminate.

inate narrowed to the base and subpetiolate. Petiole winged, 8 to 14 inches long $1\frac{1}{2}$ to $3\frac{1}{2}$ inches wide. Panicle graceful nodding 15 inches or more long with a few distant branches slender 7 or 8 inches long bracts small ovate lanceolate. Flowers in tufts of 2 or 3 distant white on pedicels $\frac{1}{8}$ inch long, slender $\frac{3}{4}$ to nearly an inch long split into segments for one-half their length; the lobes linear dilated upwards, stamens about as long, anthers oblong.

This fine plant grows in damp swampy spots in forests. I collected it in the Dindings on Gunong Tungal (No. 9448 of my collections) and have it also from Panchur in Malacca; and from Kwala Dipang and Gopeng from King's collections (Nos. 8279 and 4643). The Malacca specimens have broader and more distinctly petiolate leaves, and the panicle is stouter, but it appears to be specifically the same. It belongs to the *nutantes* section of *Dracaena*, in which the flowers are in long pendulous lax panicles.

Dracaena elliptica, Thunb. I found this common and variable plant growing abundantly in muddy swampy places along the Sungei Tebrau, this Easter. In this locality it had quite a different appearance from the common lowland dry forest form, being altogether a much larger and stouter plant, almost a small tree in fact.

We have now no less than sixteen species of *Dracaena* recorded from the Malay Peninsula, but there are doubtless more than this for I have seen several plants in our forests which appear quite distinct from any described, but of which I have not been able to obtain flowers.

COMMELINACEÆ.

Forrestia gracilis, n. sp. Stem creeping then ascending for about three feet a quarter of an inch through, twiggy dark green and glabrous, internodes 2 inches long terete. Leaves lanceolate acuminate narrowed into a winged petiole, dark green and glabrous above, velvety beneath, margined with red appressed hairs, 8 inches long 2 inches wide, petiole and mouths of sheaths hairy. Heads small

few-flowered; bracts ovate pubescent white with a green keel. Sepals oblong hooded ciliate white $\frac{1}{6}$ inch long; petals longer lanceolate acute white; stamens 6; filaments contorted with a tuft of white hairs on the top. Anthers ovate deeply grooved white. Style filiform flexuous acuminate. Stigma minute, ovary small covered with white hair; capsule oblong pink.

F. mollis, Clarke, Monogr. Commel. p. 236 (in part, not of Hasskarl).

Very common in woods, Singapore. Tanglin, Pulau Ubin (Ridley 4130), (Walker 155); Johore: Tanjong Bunga (Ridley 6320); Pahang: Pulau Tijau (2381, 2382); Malacca: Sungei Buluh (10512); Selangor: Kuala Lumpur, Sungei Ujong: Gunong Berumbun, (Cantley's Coll.); Dindings: Telok Sera. Kedah Peak.

It is curious that this our commonest species has escaped being described till now, but it seems to have been mixed up with the rarer *F. mollis*. It is known as "Setawa betina" and the Sakais use a decoction of its roots for rheumatism.

F. irritans, n. sp. Stem tall and stout $\frac{1}{2}$ inch through, leaves elliptic lanceolate with a broad flat petiole, acuminate 9 inches long, 3 inches across, hairy on both sides, sheaths $1\frac{1}{2}$ inches long, glabrous except for the hispid edges. Heads large and dense over an inch through, densely covered with red spiny hairs, sepals lanceolate covered with similar hairs. Stamens 6, anthers oblong, style filiform.

Selangor, on the Tras route at the 15th mile; Perak Bujong Malacca (Ridley 9784), Sungei Ujong, Bukit Kupayiang (Cantley's collection.) Rather rare in woods at an altitude of about 2,000 feet. A very distinct species, from its large globose heads of flowers covered densely with sharp pungent red spines. I have never seen fruit of it.

PALMÆ.

Pinanga Singaporensis, n. sp. Stems tufted dark green 6 to 15 feet tall $\frac{3}{4}$ inch through; internodes 8 inches long.

Jour. Straits Branch

Leaves concolorous or a little paler along the back about 3 feet long, sheath tubular, petiole 8 inches long, leaflets sigmoid acuminate about 13, sub-opposite, terminal one forked; 12 inches long by 3 inches wide or less, nerves 5 to 7. Spike branched erect 4 inches long, with 5 branches. Spathe thin boat-shaped papery with a short point brownish pink $1\frac{1}{2}$ inch long. Rachis cream color scurfy, flowers distichous. Males $\frac{1}{4}$ inch long, ivory white. Sepals very small acute. Petals oblique ovate acuminate much larger. Stamens 14 white, filaments very short, anthers oblong, no pistillode. Female petals and sepals broadly oblong pink, edges ciliate, stigma small, sessile papillose circular white.

This pretty palm occurs in Singapore in forests at Bukit Timah, Mandai, Stagmount and Selitar, and is No. 11267 of my collections. I have not seen it outside Singapore, and it is rather scarce there.

Ptychoraphis longiflora, n. sp. Habit and stems of *Pt. Singaporensis*. Leaf three feet or more long, rachis brown scurfy, leaflets linear acuminate 5-ribbed, alternate about 40 pairs 18 inches long, $\frac{1}{2}$ inch wide. Peduncle stout 1 inch long ribbed and scurfy, branches of inflorescence slender 4 or 5 scurfy, 6 or 7 inches long. Flowers in distinct pairs, one male and one female together about 20 pairs on a branch; males $\frac{3}{16}$ inch long, with two orbicular gibbous bracts at the base. Calyx lobes orbicular fringed. Petals lanceolate obtuse much longer. Stamens 6 shorter than the petals, filaments with a broad base narrowed upwards, anthers oblong dorsifixed. Pistillode conic stout as long as the stamens. Female flowers. Bract single small. Sepals orbicular ciliate. Petals ovate orbicular imbricate, pistil ovoid.

Johore on the top of Gunong Banang at Batu Pahat, (Ridley 1121). Besides this there are two other species of this genus described. *Pt. Singaporensis*, Becc., the Korintin palm, abundant in the South of the Peninsula, and *Pt. angusta* of the Nicobars, a plant of totally different habit. This new species closely resembles *Pt. Singaporensis*, but the petals of the male are very much longer.

Iguanura spectabilis, n. sp. Stem from 3 to 8 feet tall, tufted or solitary very stout over $1\frac{1}{2}$ inch through. Leaves entire and cuneate bilobed at the apex, margins crenulate toothed strongly ribbed, three or more feet long one foot across, petiole. Inflorescence from among the leaves, peduncle over a foot long with two sheaths 6 inches long, and a bract-like ovate acute leaf $\frac{1}{4}$ inch long above, branches stout ascending, six inches long, deep green. Flowers spirally arranged sunk in the rachis. Male, sepals ovate. Petals oblong acute twice as long $\frac{1}{8}$ inch long. Stamens 6, longer than the petals, filaments thick connate at the base with the long cylindric obtuse pistillode. Females, sepals rounded, petals ovate rounded. Fruit elliptic tip curved, black when ripe, $\frac{3}{4}$ inch long, on the thickened rachis.

This superb palm known to Malays as the "Teruno" occurs on the Hermitage Hill in Perak, and at Bruas in the Dindings where it was first obtained by Mr. Curtis and later by myself, (No. 8403) of my collections. Young living plants sent home by Mr. Curtis were described by Dr. Masters in the Gardener's Chronicle (1898, XXIII, 258) under the name of *Geonoma Pynartiana*. In the Dindings it forms a bush with numerous short stems, on the Hermitage Hill I found it with a stout tall stem. It is a most beautiful palm when well grown, the broad leaves deep green when adult, and pink when first put out, making it most attractive.

I. ferruginea, n. sp. Stem slender, leaves 18 inches long, petiole four inches long, rachis red-scurfy, leaflets 5 or 6 pairs alternate trapezoid, base narrowed, apex acuminate, margins more or less toothed, 6 inches long 3 inches through. Spathes 6 inches long acuminate. Inflorescence on a peduncle 6 to 8 inches long, red tomentose, branches thick 9 to 11 some-times branched again, 6 inches long covered with red wool. Flowers scattered distichous in foveolæ, covered with red wool. Male flowers glabrous. Sepals ovate rounded, petals lanceolate ribbed, $\frac{1}{3}$ longer. Female flowers sepals similar, petals shorter and

blunter. Drupe cylindric curved, slightly narrowed towards the tip, black, half inch long. Seed cylindric acute curved rugose $\frac{3}{8}$ inch long; albumen equable.

On the Thaiping Hills common from about 2000 feet elevation upwards (10684; 11405 of my collection) and Bujong Malacca (Curtis 3164). This palm has the habit of *I. polymorpha*, Becc., but the stouter inflorescence on a longer peduncle and covered with red wool, the larger flowers, and curved cylindric fruit, make it very distinct.

The Iguanuras are not an easy group of palms to separate, as they are apt to be very variable especially in the form of the inflorescence. There appear to be seven kinds at present known from the Peninsula. The commonest species is *I. geonomaeformis*, Mart. A lowland species with usually one simple spike. Of this there are the following forms: (a) *typica*, with a simple stout tomentose spike, (b) *ramosa*, a similar spike but branched, with 2 or 3 branches, (c) *malaccensis*, with a slender glabrous simple spike (occasionally branched). The leaves of all these forms may be quite entire. *I. Wallichiana*, Hook fil., with a compound inflorescence of several slender branches, is allied to this latter form. It also varies in the form of the leaves. Two plants described by Hooker and Beccari from Scortechini's collection, viz., *I. diffusa* and *I. parvula*, appear to me to be forms of these species. The first is a large plant with an inflorescence more compound, the second a dwarf abnormal form. I have only however seen sketches of them and very little of the plants appears to have been collected. *I. corniculata* has also only once been collected. The fruit is curiously curved, and is possibly abnormal, *I. polymorpha*, Becc., including *I. brevipes*, Hook. fil., is a distinct plant, not rare on the Thaiping Hills. *I. ferruginea* is allied to it but seems to me to be distinct. *I. bicornis* has curiously bilobed fruit, and occurs also on the Thaiping Hills, but seems to be rare.

Livistona rupicola, n. sp. Stem short and thick about 3 feet long and 6 inches through, densely covered with brown fibers from the leaf sheaths. Leaves orbicular about 2 feet across with about 12 leaflets rather narrow very acumi-

nate tips setaceous; petiole slender 20 inches long nearly thornless. Spadix slender, much branched. Spathes split striate cuspidate dark brown, the two basal ones three inches long, upper ones slightly dilate cuspidate. Branches many long slender with many very long and slender sinuous spikes 1 to 2 inches long, lengthening to 4 inches in fruit. Bracts at the base of the branches linear narrow caducous. Flowers very small globose; sepals rounded gibbous. Petals similar. Staminal crown with 6 subulate teeth.

Selangor limestone rocks at the Kuala Lumpor caves (8285 of my collection), Lankawi Islands, (Curtis).

This charming palm, the Serdang Batu of the Lankawi Islands, is probably the smallest species of the genus. It is remarkable for its very short thick stem densely covered with brown fibres, the remains of old leaf sheaths. The inflorescence is also very small for the genus. It grows on the limestone rocks of the Selangor caves from the lower part to the top of the cliffs.

Licuala longepedunculata, n. sp. Stem 2 to 8 feet tall, 1 to $1\frac{1}{2}$ inch through, leaves 4 to 5 feet long orbicular, lobes 6 or more narrowed at the base and broadened upwards with broad blunt teeth 15 to 16 inches long and 3 inches across at the tip, deep green, petiole slender not thorny. Inflorescence slender 3 feet or more long, peduncle broad flattened at the base, quite glabrous over 2 feet long, sheaths distant long, spikes 3 inches long, in fours. Flowers scattered over $\frac{1}{8}$ inch long, rachis moderately stout, calyx urn-shaped sessile not lobed. Petals lanceolate obtuse.

Perak, Gunong Batu Putih (Wray 254) (King's Coll. 8148). I only know this species from the above mentioned collections. Beccari labels it "*L. glabra*, foliis latoribus," but it is certainly very distinct from *L. glabra*.

L. (Percycla) paniculata, n. sp. Leaf large, lobes $2\frac{1}{2}$ feet long, rather narrow, with short teeth $\frac{1}{4}$ inch broad. Inflorescence panicle wide-spreading 3 feet long, spathes 6 not split, the lowest 8 inches long $\frac{1}{2}$ inch wide, upper part reddish, upper spathes shorter dilated upwards. Branches

panicled, spikes long and slender 5 to 7, glabrous or scurfy, 7 inches long or less. Flowers scattered sessile $\frac{1}{8}$ inch long. Calyx cylindric with a broad base, truncate obscurely and irregularly lobed glabrous. Petals short and broad ovate acute. Staminal ring with 6 teeth. Pistil sometimes bilobed, stigma lateral.

I collected a specimen of this on the Hermitage Hill in Perak, and have never seen it since, and unfortunately omitted to record the size of the plant. It is evidently allied to *L. pericycla*, Zipp., *Pericycla penduliflora* of Blume, a native of New Guinea, from which it differs in having solitary sessile, not stalked flowers in pairs. The panicled inflorescence is unique in Malay Licualas as at present known, and is the characteristic of the section *Pericyclus* of which the New Guinea species is the only other one known. It is to be hoped that any one visiting the Hermitage Hill will recollect this curious plant and bring full details of its habit and size.

Calamus aquatilis, n. sp. Stem fairly stout about 30 feet long covered with dense bristle-like black spines. Leaf large flagelliferous armed with copious black spines in short rows, petiole a foot long stout black rounded, edge armed with spines of different sizes flattened 2 inches long or less, those at the base black long or slender, leaflets numerous equidistant linear acuminate 1 foot long an inch broad, bristles short scattered along the edges and back, flagellum 4 feet long, hooks in half whorls numerous. Panicle very large and stout, lower sheaths tubular an inch through with numerous decurved spines single or in twos and threes black tipped, chiefly on the back and sides on the upper part. Branches about 2 feet long, secondary spathes tubular unarmed an inch long, male branchlets numerous 6 inches long, spathels tubular about $\frac{1}{8}$ inch long, spikes subdistichous recurved $\frac{3}{8}$ inch long green. Spathellules saucer-shaped with a small ovate limb, sepals oblong lanceolate. Petals as long oblong lanceolate thicker. Stamens, filaments rather long slender, anthers long narrow. Female branchlets 2 to 3 inches long, spathels funnel-shaped. Spathellules

small saucer-shaped. Flowers solitary, sepals ovate as long as the petals and quite similar. Fruit small globular beaked $\frac{1}{2}$ inch long scales in 6 whorls, rhomboidal as broad as long, yellow or brownish yellow, tips darker, grooved.

This rattan is common in tidal river swamps, and is known as "Rotan Bakau." There is a trade rattan of the same name but I am not yet certain that it belongs strictly to this plant. The general appearance of this species when out of flower is that of *Daemonorops angustifolius*. It does not seem to flower very frequently, as I have seldom found it in flower or fruit, abundant as it is, which is probably why it has never hitherto been described. Professor Beccari who is engaged on a work on our rattans to be published in the Annals of the Botanic Gardens of Calcutta, considers it to be quite a distinct plant from any described.

I have met with it in Singapore, on the Serangoon Road, and at Changi (6275 of my collections), Johore, Panchur on the Johore river; on the Sungei Tebrau river, and at Batu Pahat (11216), and in Pahang at Kuala Pahang.

AROIDÆ.

Cryptocoryne purpurea. n. sp. Aquatic, stem creeping stoloniferous. Leaves ovate or elliptic ovate, base broad 3 inches long $1\frac{3}{4}$ inch wide, petioles 4 inches long, peduncle short about half an inch long, spathe 3 or more inches long, tube twisted $\frac{1}{4}$ inch through, white, limb ovate caudate $\frac{1}{2}$ to 1 inch long, half an inch wide deep purple brown with a yellow mouth, pustular, tail $\frac{1}{2}$ inch long, valve over the inflorescence oblong truncate pale yellow. Female flowers 6 to 8 connate in a circle, styles very short, stigmas discoid, neuters above the pistils 5 or more, nude portion of spadix slender. Male flowers few yellow obcuneate, appendix small elliptic clubbed.

Johore, Kota Tinggi (4214 of my collections). This plant cultivated in the Singapore Botanic Gardens for several years, was sent to Kew Gardens where it flowered

and was figured in the Botanical Magazine plate 7719 under the name of *C. Griffithii*. It is however quite distinct from that in its more numerous, female flowers, smaller appendix to the spadix, and much longer tube. It grows very readily in water, and is perhaps the easiest to cultivate. I have only seen it in the one locality mentioned, our commonest species being the short tubed *C. Griffithii*.

Typhonium fultum, n. sp. A small herb with a short stem above the ground propped on strong roots. Leaves 5 or 6, ovate or deltoid hastate 2 to 3 inches long 2 inches wide deeply cordate, apex acute, lobes rounded, petiole $2\frac{1}{2}$ inches long. Peduncle $\frac{1}{4}$ inch long, spathe with a green base dilated $\frac{1}{4}$ to $\frac{1}{2}$ inch long, limb 2 inches long $\frac{1}{2}$ inch broad; subacute or acuminate purple-veined, tip green. Spadix about as long. Appendage orange brown cylindric from a thick base tapering upwards, below a short nude portion. Male portion of about 6 rows of oblong yellowish anthers, then a longer nude portion. Neuters numerous horn-shaped white up-curved. Females in one whorl oblong, one ovuled.

Selangor at the limestone caves near Kuala Lumpur (8165) also found in Lankawi Islands by Curtis.

This odd little aroid is remarkable for the stem standing up supported on its roots above ground after the manner of a Pandanus, a habit not observed in any other species, the rest of them having small underground tubers.

T. filiforme, n. sp. A very small herb, tuber globose $\frac{1}{3}$ inch through. Leaves 2 or 3 deltoid hastate acuminate, lobes divaricate acute 2 or 3 inches long, $\frac{3}{4}$ to $1\frac{1}{2}$ inch wide, petiole slender 2 to 5 inches long. Peduncle $\frac{1}{4}$ inch long. Spathe 3 inches, base elliptic $\frac{1}{4}$ inch long olive green, limb linear very narrow, apex eventually coiled up yellowish spotted with red. Spadix very slender $3\frac{1}{2}$ inches long, appendix ochre yellow filiform nearly 3 inches long, male portion short below them a long slender nude portion, neuters filiform contorted long, female flowers few oblong.

I found this at the foot of the limestone cliffs at Kuala Dipang in Perak. It is evidently allied to *T. bulbiferum*, Dalz., of the Concan, differing in the absence of any trace of bulbils, the longer appendage and neuters, and longer bare space below the male flowers.

Amorphophallus Malaccensis, n. sp. Tuber 4 inches through hemispheric with a depressed top. Leaves not certainly known. Peduncle 7 inches tall rough. Spathe tube wide trumpet-shaped 3 inches long, limb broad rounded six inches long and as wide. Spadix longer, appendage fusiform acuminate 6 inches long rugose hollow, loose textured and fibrous within. Male portion one inch long anthers crowded oblong. Female portion $2\frac{1}{2}$ inches long. Flowers numerous, ovaries ovoid, style $\frac{1}{4}$ inch long.

I only know this from some dried specimens which were collected by a native collector on Bukit Panchor in Malacca. It belongs to the section including *Amorphophallus*, *Rex*, and *campanulatus*, but is distinct in its longer peduncles, and longer narrower appendage. I have several times met with foliage of a plant very much resembling that of a *Rex* with a tall stout dark green scabrid petiole which may perhaps belong to this species. A very large spike of fruit over a foot longer with berries half an inch long which was obtained by Mr. Hervey on Bukit Payong in Malacca is very probably the fruit of this plant. It should be looked for again.

A. minor, n. sp. Tuber an inch through. Leaf petiole slender 9 inches long, blade three branched each branched again, leaflets numerous thin green (red when young) lanceolate acuminate inaequilateral 3 inches long by one inch wide, nerves numerous close joining an inner intramarginal one. Peduncle 8 to 12 inches long with loose brown sheaths at the base, the largest truncate 4 inches long. Spathe 3 to 4 inches long convolute at the base lanceolate acuminate 1 to $1\frac{1}{2}$ inch across. Spadix 3 inches long. Appendage cylindric-conic an inch long. Male portion as long as the appendage. Flowers very numerous crowded. Females few. Style very short.

Perak on the Thaiping Hills; and in Province Wellesley at Tasek Gelugor. This is allied to *A. sparsiflorus*, Hook. fil., differing in the shorter appendage and longer male portion of the inflorescence.

- A. carnea* n. sp. Tuber hemispheric 3 inches across. Leaf unknown. Peduncle 3 inches and a half long, smooth gray green with brown blotches, sheath at base 2 inches long. Spathe 5 inches long, loosely convolute at the base with a broad limb pinkish with brown blotches, paler within. Spadix rather longer. Appendix conic obtuse 3 inches long 1 inch through at the base fleshed low obscurely cancellate. Male portion 2 inches long stout greenish. Stamens densely crowded. Female portion ovaries shortly pedicellate, broad flask shaped, style short and thick. Stigma lobed.

Lankawi Islands (Curtis). This plant was flowered from a tuber brought in with tubers of *Arisaema* from Lankawi Islands, in the Penang Gardens. I have only seen a drawing of it but I know nothing quite like it.

- Alocasia ovalifolia*, n. sp. Stem about a foot tall, leaves ovate cordate acute dark green one to 2 feet long 5 to 12 inches wide with 20 pairs of nerves, petiole stout over a foot long. Peduncle six inches long or less. Spathe 3 to 6 inches long, tubular portion $1\frac{1}{2}$ inch long, limb 3 inches long $\frac{1}{2}$ inch wide oblong obtuse. Spadix slender, appendage cylindric $\frac{3}{4}$ to 2 inches long. Male portion 1 inch long. Flowers oblong crowded, below them a nude portion. Female portion 1 inch long.

Johore, base of Gunong Pant; Selangor, Tras Route at the 15th mile (No. 8487), Ginting Peras, Bukit Kuta; Perak, Sungei Larut (Wray 2457), Larut Hills; Penang, Moniots Road (Curtis). Rather a dull looking *Alocasia* not uncommon in the hill woods.

- Pothos inaequalis*, n. sp. Stem rather slender much branched. Leaves elliptic oblanceolate with a long point and acuneate base intramarginal vein often far from the edge undulate with another very inconspicuous one close to the edge, main nerves often large and remote 4 to 7

inches long 1 to 2 inches wide. Petiole $\frac{1}{2}$ to 1 inch long sheathing to the thick knee which is half an inch long. Bracts several, upper one sheathing $\frac{1}{2}$ inch long, lower ones small. Peduncle $1\frac{1}{2}$ to 2 inches long fairly stout curved. Spadix an inch long cylindric dense flowered. Sepals cuneate with a broad flat triangular top. Pistil top broad rounded. Pahang, Pulau Tawar (2391).

P. ellipticus, n. sp. Stem fairly stout leaves elliptic cuspidate 5 inches long $2\frac{1}{2}$ inch wide, pale green when dry, keel stout, base rounded, inner intermarginal vein some way from the edge, outer one close to the edge, parallel nerves fine and close. Petiole 3 inches long sheathing rather broadly to the knee $\frac{1}{4}$ inch long. Peduncle stout 2 inches or less deflexed. Spadix nearly sessile $\frac{3}{4}$ to 1 inch long thick cylindric dense flowered. Flowers fairly large. Sepals oblong with a broad inflexed top. Stigma discoid shortly elevated. Fruit oblong $\frac{1}{2}$ inch long.

Pahang on the Pahang river, at Kuala Tembling and Pulau Tawar.

P. grandispatha, n. sp. Stem slender less than $\frac{1}{2}$ inch thick. Leaves lanceolate cuspidate 6 to 8 inches long, 2 to $2\frac{1}{2}$ inches wide, cusp $\frac{1}{2}$ inch long base narrowed blunt. Petiole 2 inches long sheathing rather broadly to the very short $\frac{1}{2}$ inch knee, sheaths eventually breaking up into fibres. Peduncle slender 2 inches long. Spathe broadly ovate acuminate, apparently purple in life, narrowed at the base $2\frac{1}{2}$ inches long 1 inch wide. Spadix very slender 1 inch long sessile. Flowers very small, sepals oblong truncate, style distinct with a small discoid stigma.

Penang, West Hill (Curtis). Allied to *P. brevistylus*, Engler. This plant is remarkable for its large spathe.

PANDANACEÆ.

Pandanus immersus, n. sp. A stout pandan growing immersed in water, the stem rising but little above, leaves many feet long broadly linear 4 inches across, glaucous beneath, acuminate with a long point, thorns numerous brown. Female spike solitary on a stout flexuous peduncle 2 inches long $\frac{1}{2}$ inch through, oblong thick green 4 inches long $1\frac{1}{2}$

inches through, carpels small with a very stout simple curved style $\frac{1}{8}$ inch long.

Selangor in the Labu River, forming dense thickets. Native name "Mengkuang Ayer."

- P. bicornis*, n. sp. Stems short, only one or two feet tall. Leaves dark green glaucescent at the top of the stem 2 feet or more long 2 inches wide broadly linear and tapering quickly into a very thorny tail 3 inches long, edge and keel armed especially at the base with numerous recurved thorns. Female bracts broad ovate, outer ones rather abruptly acuminate 6 inches long with a slender point 2 inches long thorny, inner bracts obtuse, head solitary oblong rounded at the top 4 inches long and nearly as broad green, carpels nearly $\frac{1}{2}$ inch through $\frac{3}{4}$ inch long top broad free obscurely angled. Style broad short with two spreading short sharp horns with broad bases about $\frac{1}{8}$ inch long.

Perak, Thaiping Hills in dense forest at 2500 to 3000 feet altitude.

- P. aurantiacus*, n. sp. A large branching shrub with stems 2 or 3 inches through and about 12 feet tall. Leaves over 3 feet long, $1\frac{1}{2}$ inch wide, glaucous green, linear long acuminate, tips deflexed, with numerous close-set short thorns on the edge and keel. Female inflorescence with a stout rachis about a foot long and five globose oblong heads $2\frac{1}{2}$ inches long 1 inch through, orange colored. Carpels large $\frac{3}{4}$ inch long, apex conic ending in a long stout but not very hard beak.

Singapore, Bukit Mandai Road; Johore, Tanjong Bunga (6288 of my collection); Perak, Larut Hills; also in Sarawak.

This grows on swamps on river banks usually near the sea, and is known in Johore as "Pandan Akar". This may possibly be the *P. Yvoni* of Solms-Laubach (Linnaea XLII, 20) based on a plant collected by Yvan in Malacca, but the description is too poor to identify any pandan.

- P. stelliger*, n. sp. A slender stemmed pandan 4 to 10 feet tall, branched. Leaves linear acuminate shining grey green

over a foot long and an inch wide, the point narrow 3 inches long, thorns distant except at the point which is very thorny. Heads oblong ovoid 2 inches long and over an inch through in a cluster of four nearly sessile. Carpels $\frac{1}{4}$ inch through the style oblong, top square with from 3 to 6 horizontal points sharp and rough at the tip.

Selangor, on the Tras Route at the 20th mile (8775;) Perak, Thaiping Hills at 2500 feet altitude in forests.

This was referred to *P. minor*, Ham., by the Kew authorities but differs in the clustered heads of fruits and the curious style which is quite flat and square at the top with from 3 to 6 horizontally spreading points.

P. glaucophyllus, n. sp. Stems 10 to 12 feet tall $\frac{1}{2}$ to 1 inch through. Leaves crowded at the top 1 to 2 feet or more long 2 inches wide glaucous broadly linear oblong, tip abruptly acuminate, edge minutely denticulate rather flaccid, midrib prominent with very small thorns, capitulum globose 2 inches long on a stout peduncle about 3 inches long. Fruit rounded tapering into a stout upcurved simple spine $\frac{1}{6}$ inch long grooved above the tip acute.

Perak, Thaiping Hills in dense forests, about 2500 feet altitude. Rather local, growing in small patches. Allied to *P. parvus*, Ridl, but very much larger in all its parts.

P. penangensis, n. sp. A tall stout tree about 20 feet tall and four inches through the stem. Leaves very long linear acuminate 6 to 12 or 14 feet long 4 inches across often especially when young marbled light and dark green, edges and keel armed with stout thorns crowded towards the tip of the leaves. Heads 4 or 5 together on a short peduncle, green oblong 6 inches long, 3 inches through. Carpels an inch long, free portion conic angled $\frac{1}{3}$ inch long. Styles strong simple hard dark brown polished curved forward $\frac{1}{2}$ an inch long.

Penang Hill from the base to the top, in woods. This resembles *P. furcatus*, Roxb., in habit but has a compound inflorescence.

CYPERACEÆ.

Mapania triquetra, n. sp. Stem ascending or erect 6 inches tall, trigonous broad from the very broad leaf. Sheaths 12 inch long and one inch wide green edged with pink. Petiole green 2 to 3 inches long, blade oblong dark green above, paler beneath, base broad apex rounded ending abruptly in a tail $1\frac{1}{2}$ inch long, edges aculeate, whole blade 6 to 8 inches long, 2 inches wide. Scapes slender 3 inches long red. Head of flowers very small $\frac{1}{2}$ inch long narrow. Bracts shorter lanceolate red. Squamellæ 6, two outer ones with ciliate keels. Stamens three white anthers twisted linear oblong. Style long. Stigmas 3 short.

Woods, Dindings, Lumut (Ridley), Pangkor (Scortechinii); Negri Sembilan, Bukit Tumiang (Cantley's collection); Penang Hill (Curtis). Also in Sarawak.

This pretty and curious plant has been confused with the common *M. humilis*, Naves and Villar, but is really totally distinct in the broad triangular stem shorter and broader leaf blade and the very small head of flowers.